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## EDITORIAL

### Life PRIMES, a winning project in flood risk management

PRIMES: for Emilia-Romagna an important part of the regional strategy of flood risk management and adaptation to climate change; a complex and intricate initiative that has seen working together a team of technicians and professionals from different institutions and Regions, with a view to improving community resilience, developing innovative and sound tools that will remain in our heritage and will be further consolidated and used in the coming years.



PRIMES: a specific measure of the first generation Flood Risk Management Plans (PGRAs), approved in 2016 pursuant to art. 7 of the 2007/60 / EC Floods Directive and currently in force in Emilia-Romagna.

A non-structural action related to the part of the PGRAs that deals with the issues and aspects of real-time management of flood events, which proved particularly effective as it contributes to the implementation of other closely related measures, such as the improvement of knowledge on clima-

te change in place, to contribute to the development of municipal-scale civil protection plans, to increase community awareness. I mention only a few, giving an account of how PRIMES has given a strong impetus to the progress of the PGRA.

I think, in this regard, that the successful implementation of the project is proof of how the implementation of a community standard, Directive 2007/60, has represented a concrete action for our territory and with positive effects on the daily life of citizens and not a mere compliance to be observed in order not to fall into infringement proceedings or appeals by the Commission.

What are the news and PRIMES elements of particular interest for the Emilia-Romagna Region? The atlas of the climate scenarios on an interregional scale, for example, which will be an important reference in the Po river district for the second cycle of implementation of the Directive, which explicitly asks to take this aspect into account in the new maps to be produced by December 2019.

Another innovative aspect is the inclusion of the sea storms between the phenomena analyzed, with the double result of arriving at a unitary alert procedure and raising the awareness of citizens and operators on the risks related to the possible effects of climate changes in the coastal area and, in particular, sea level rise. For this purpose, among the case studies of Emilia-Romagna, the location of the Emilia-Romagna coast was selected, most exposed to sea flooding phenomena at sea storm events (Lido di Savio), among others award as a more resilient community.

Finally, I remember the platform [www.lifeprim.es.eu](http://www.lifeprim.es.eu), to which the Region has worked actively with the close collaboration of the other project partners, which includes all the products and the elaborations of PRIMES, including the interregional map of the alerts, the first prototype of this kind on a national scale.

A few days from the final conference of the project, held last November 16th, and from the emotions that has left us all "La Margherita di Adele", represented at the theater of Casalecchio di Reno, I can certainly close with a positive balance and to say that PRIMES has been an experience that has enriched and made the staff who worked on it more interdisciplinary.

And that is why I greet "Ada", the protagonist of the short video tutorials that explain what are the floods and how to deal with them, with a "Goodbye" to a next project.

*Monica Guida, Directorate General for the Territory and the Environment - Emilia-Romagna Region*

# The Life PRIMES Final Conference

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A special day, to tell the three years of Life PRIMES, meet for a greeting, thank those who believed in it, and start again with the awareness of having contributed to spread new knowledge and adaptation strategies, facing the challenges posed by climate change.

On Friday 16 November, at the Laura Betti theater in Casalecchio di Reno (Bo), administrators, technicians and citizens met at the end of the project, to present the beautiful experiences made in the

10 communities involved, and to understand how, from the results obtained, it is possible re-circulate good practices of prevention and risk protection in the daily life.

At the opening greeting of the Mayor of Casalecchio, Massimo Bosso, Clarissa Dondi, of the Regional Agency for Territorial Security and Civil Protection of the Emilia-Romagna Region, lead partner of the project and Marco Cardinaletti of Eurocube, the company that supported the project

partner regions.

The participation process was divided into 13 public meetings, 3,000 citizens involved, 2400 CAAP (local adaptation civic plans) compiled.

Five video tutorials have been produced, with a female protagonist, Ada, who accompanies and explains in a nutshell what are floods and sea storms, climate change, adaptation actions, what to do in case of alert and the municipal civil protection plan. Among the most important tools, PRIMES has developed an Interregional Manual for the homogenization of alert systems, and the online platform.

The event continued with the preview launch of the final video that traces the history of the project in three minutes with the most significant images of the training tests, the public moments of confrontation, the meetings in schools.

It was then the turn of Eva Merloni of Area Europa who entered the merits of the CAAP, with an in-depth analysis of the results of the online compilation: the level of knowledge of risk and resilience was on average in the three regions involved above 70%; a positive fact, which highlighted the need to continue working with citizens developing new adaptation actions; which is also highlighted by the work of the team of the Polytechnic University of the Marche, represented by Maria Teresa Carone. In this case a study was conducted, based on scientific research methods, on the degree of resilience of the ten areas subjected to experimentation, structured in two distinct moments, before and after the PRIMES interventions.

The final surveys found that, in most cases, the communities subject to experimentation were classified within the so-called "resilience area", improving the starting position. A greater awareness of the level of risk and a more widespread sensitivity to its reduction – and the ability to respond – is the demand for more incisive and frequent actions of information and training, to be preferably done through public meetings.

The first part of the event was closed by the section "Tales from the territories involved", in which space and voice were given to interested communities.

Marco Bacchini from the Romagna Area Service of the Regional Civil Protection Agency, presented the most salient actions that characterized the experimentation conducted in the six locations in the provinces of Bologna, Ravenna and Ferrara. Very

interesting aspects emerged such as the easy replicability, the reduced costs of participation initiatives open to the community; and the positive repercussions on municipal emergency planning, especially as regards information to the citizen. A positive balance, which brought administrations, civil protection volunteers, schools and families to work together.

The Mayor of Pineto (TE), Robert Verrocchio, told his personal experience PRIMES. Meeting the communities, discussing risks, explaining the responsibilities of government, and encouraging participation, helped the administration to rethink the municipal plan in the light of the leading citizen, aware of both the fragility of the territory in which he lives and his extraordinary ability to strive to defend the territory.

Silvia Rossi, representing the Civil Protection of the Marche Region, has relied on the metaphor of bees and beehives to tell her wonderful experience of dissemination, especially in schools. A continuous, passionate work with primary, first and second grade students, who also involved teachers, families and school staff. Starting from the fears and memories of the most recent floods - for example Senigallia 2014 - we tried to reconstruct a correct perception of the risk and self-protection of individuals, through work in the classroom and with targeted exercises and evacuation tests. Also in the Marche region, the Municipalities involved in PRIMES are adapting their municipal plans according to the results obtained from the project actions.

To reward the most resilient communities, another highlight of the event, was Paola Gazzolo, councilor for civil protection and environmental policies of the Emilia-Romagna region. The results of the experimentation – she said – went even beyond initial expectations. A project proves effective also by the skills it puts in place to continue its work and move forward. On the stage of the theater Laura Betti rose in succession, Andrea Emiliani, Mayor of Sant'Agata sul Santerno (RA), the councilor of the Municipality of Ravenna Gianandrea Baroncini, Daniele Garuti, Mayor of Poggio Renatico (FE), Nino di Fonso, Mayor of Torino di Sangro (CH) – who will be given a personalized multimedia totem Life PRIMES – and councilor Valerio Pignotti, representing the City of San Benedetto del Tronto (AN), who will receive a traffic light panel as a gift.

When the lights went out in the hall, "La Margherita di Adele 2.0" was staged, a story written by Marco Vi-



gnudelli and starring Anna Pancaldi, Fernando Vozzi, Marco Soccol and Stefano Antonini, directed by Stefano Antonini.

The show, already represented in other contexts, aims to explain what climate change is, how it is occurring, how temperatures are changing and how to report data on heat waves, drought, intense weather events, through a story set in 2050, in a recognizable place, which is changing and in which problems occur that touch our lives and our communities closely. Many citizens took their seats in the audience.

The event was concluded by a debate, conducted by Alessandra De Savino, of Eurocube, with the experts Carlo Cacciamani, head of the Central Functional Center of the Department of National Civil Protection, Sergio Castellari, a climate expert in the European En-



vironmental Agency, Costantino Marmo, professor of semiotics and semiotic history at the University of Bologna, Antonello Pasini, climatologist physicist at Cnr and author of many specialist publications. There was a discussion about the changing climate, the impact on risk conditions, the concrete and feasible actions to reduce it, the important role of communication, and how important it is to explain it to citizens with appropriate language. The experts also discussed the adaptation to climate change, and the consequences on the economic and social level, touching issues of great relevance such as that of climate migrants.

*Francesca Carvelli, Agency for Territorial Security and Civil Protection of Emilia-Romagna*

# The Civic Adaptation Plan (CAAP): the results of Life PRIMES

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The aim of Life PRIMES to increase the resilience and adaptation capacity of the community with respect to the flood risk was achieved starting from the direct involvement of citizens and mainly thanks to the conception of the Civic Adaptation Plan (CAAP).

The CAAP is a tool for the active participation of citizens in local policies of local government and is structured as an online game, catchy and easily compiled by any type of subject.

The tool, to be effective, was accompanied by a presentation and sharing process with the local communities involved in the project: Lido di Savio (Ra), Poggio Renatico (Fe) and four Municipalities of Santerno Basin (Lugo and Sant'Agata) on the Santerno - Ra, Imola and Mordano - Bo) in Emilia-Romagna; San Benedetto del Tronto (AP) and Senigallia (AN) in the Marche; Torino di Sangro (CH) and Pineto (TE) in

Abruzzo.

In each of the test areas was organized series of participation activities, subdivided into:

- **Preparatory activities**
- **Development workshop:** Development workshop: meeting with the mayors (WS1), action plans in the pilot areas (WS2) and final workshop (WS3)
- **Implementation activities:** demonstration action and alert simulation.

Overall, 36 participation activities were carried out involving around 1916 people. The table below shows in detail the number of participation activities carried out and the number of participants in each region (Tables 1 and 2).

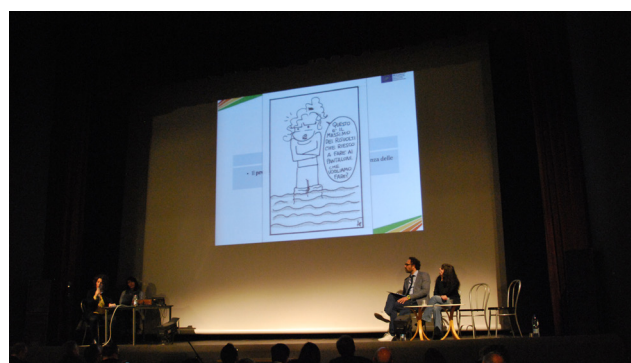
- Table 1: Number of participation activities carried out in each region
- Table 2: Total number of participants in participation activities in each region

Regions	Preparatory meetings	WS 1	WS 2	WS 3	Demostrative Action	Exercise on flood risk
Abruzzo	2	1	2	1	1	1
Emilia-Romagna	10	1	3	3	1	1
Marche		1	4	1	2	1

table 1

Regions	Total number of participants
Abruzzo	290
Emilia-Romagna	461
Marche	1165

table 2



The CAAP was completed mainly during the development workshops for the definition of action plans in the pilot areas (WS2) and, overall, the CAAP was compiled by 2525 stakeholders, of which 2275 belong to the three target regions. The analysis of the results showed that the level of knowledge / perception on the risk of floods and

sea storms in the areas affected by the project is quite high. In fact, 85% of users have obtained a profile of resilience 4, answering correctly to the CAAP questions in 90% of cases (Fig.1).

The adaptation actions identified as priorities, in most cases, are shown in the table below:

I am informed	About the critical issues of the territory, the risk, the alert issues and the behavior to be taken
I propose (to the public administration)	The realization of a vademecum on what the citizen can do to be useful
I act (in the family)	Checking the state of security of the house and functionally adapt the house in relation to possible flooding scenarios
I act (in the community)	Dedicating myself to voluntary activities of civil protection and environmental protection in my municipality
I act (in the workplace)	Checking if there is an emergency flood risk plan in the company where I work



Figure 1: Resilience profile 4

The participation and active involvement of citizens and stakeholders was also clearly demonstrated thanks to the numerous adaptation actions proposed by the same: 2376 CAAP users suggested concrete adaptation actions to be included in the future plans for civil protection.

The course ended with the award of the Prize for the Most Resilient Communities, whose award criteria were based on the ratio between the number of completed CAAPs and the number of residents in each pilot area. The communities that have obtained a greater relationship and who have therefore won the prize are: Lido di Savio, Sant'Agata sul Santerno, San Benedetto del Tronto, Torino di Sangro.

*Eva Merloni, AreaEuropa*

# La Margherita di Adele in schools in the province of Bologna

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Lyrics and music. To help those who are still on school to understand the phenomena related to climate change, complex, but with a truth basically very simple: the land that will live as adults should be protected, and to do so we must act now.

The Life PRIMES project has brought in recent months in the Municipalities that have joined, "La Margherita di Adele 2.0", a theatrical show on the theme of climate change: an exciting journey, between science, information and entertainment, to the discovery of a probable future but still avoidable.

The story was written by Marco Vignudelli and is interpreted by the actors Anna Pancaldi, Fernando Vozzi, Marco Soccol and Stefano Antonini under the direction of Stefano Antonini. Between November and December, a small version was staged in some schools of Bologna, organized by Arpae Emilia-Romagna, together with the Regional Agency for Territorial Security and Civil Protection, and with the support of the Eurocube companies and AreaEuropa. The format, produced by the association SpostaMenti and designed specifically for schools, provides a theatrical representation with the presence of two musicians and a reader, the scientific discussion on climate change, the presentation of the PRIMES project and the CAAP (civic adaptation plans).

It was presented in Bologna on November 20th at the Aldini Valeriani Institute (first and second classes) and on November 29th at the Belluzzi Institute (fourth and fifth classes). December 5th was the turn of the Municipal Theater of Budrio with the participation of the students of IIS Giordano Bruno (Technical Institute and Lyceum). This format of musical reading as well as explaining what climate change is, serves to understand how it is manifesting, how temperatures are changing and to tell data on heatwaves, drought, intense weather events, through a story set in the 2050, in a recognizable place, which is changing and in which problems occur that touch our lives and our communities closely. In the four meetings addressed to the Higher Institutes of the Metropolitan City of Bologna to the proposed format with musical readings, scientific analysis on climate change and presentation of the project, a session of questions and answers followed with the careful participation of the students. There was a discussion about the need to adapt to climate change, knowing how to face, prepared, the impacts that can be incurred, for example, during the presence at school. So we talked about the plans to evacuate schools by flooding, a typical topic addressed and promoted within the Life PRIMES project.

The combination of different elements such as theatrical reading and short and effective scientific interventions on the issues of mitigation and adaptation involved the boys and the girls, receiving consensus among the students and the teaching staff. This is what emerges from the answers to the questionnaires distributed to the participants at the end of the meetings, which in total reached almost 800 people between students and teachers.

*Lucio Botarelli, HydroMeteoClimate Service of Arpae Emilia-Romagna*



# The Life PRIMES project at the Forum Informed Cities in Vienna and at the Disaster Risk Reduction Forum in Rome

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The Life PRIMES project participated in two important international events in November: the sixth edition of the Forum Informed Cities organized by ICLEI held in Vienna from November 7th to 8th and the 2018 European Forum on disaster risk reduction (European Forum on Disaster Risk Reduction - EFDRR) organized by the National Department of Civil Protection in collaboration with the United Nations Office for Risk Reduction - UNISDR and with the European Commission, which took place from November 21st to 23rd in Rome. Both appointments saw the participation of representatives from various nations at international level and in particular from institutions of European countries.

At the Vienna event for Life PRIMES, the Agency for Territorial Security and Civil Protection of the Emilia-Romagna Region, the Marche Region and the Marche Polytechnic University participated. The 2018 edition of the forum was dedicated to participatory processes involving the population with a particular focus on the exploration of technological and digital ("smart") tools available

to institutions to reduce the distance between local administrations and their citizens. During the sessions, which took place during the two days of work, many experiences were presented on the use of computer platforms for the direct participation of citizens in the choices of territorial governance and for the sharing of information and data (Open Data). The forum was held through working groups exchanging good practices and discussing the different experiences of using new applications. Within these working sessions, the representatives of Life PRIMES had the opportunity to present the participatory processes implemented within the project and in particular the CAAP (civic adaptation plan) active on the website [www.lifepimes.eu/index.php/plan-of-adaptation](http://www.lifepimes.eu/index.php/plan-of-adaptation) used as a training tool and active participation of local communities in flood risk reduction policies. The route taken with citizens, and in particular with schools, for assessing the perception of risk, the construction of the interregional warning web map and the sharing of spatial data related to climate scenarios were also recalled. The theatrical show



about climate change (La Margherita di Adele) has also attracted great interest as an innovative tool for the involvement of the population through alternative languages and methods.

The Agency for Territorial Security and Civil Protection of the Emilia-Romagna Region took part in the Rome appointment. Starting from the assumptions of the "Sendai Framework Program" (Sendai Framework for Disaster Risk Reduction 2015-2030), the event promoted the creation of a space for comparison on the international strategy for disaster risk reduction, the elaboration of coordinated programs at regional and local levels for risk prevention and for enhancing community resilience. During the three days there were debates, round tables, plenary and work sessions dedicated to risks related to human activities or natural disasters.

In particular, it was pointed out that climate change has made the events more extreme and as a consequence we are more frequently faced with emergencies for serious disasters. It becomes fundamental to learn how to deal with all types of events even those that are so unpredictable and

unexpected and with significant effects the so-called "Black Swans". These phenomena, considered extremely different from the norm, collectively play a much more impacting role than all the ordinary events. Attention must also be given to the "Gray Rhinoceros" events which are not unexpected and are extremely probable and recognizable, but whose risk potential is often underestimated. Therefore, the role of resilient citizens capable of reacting to events and ready to contribute to the management of emergencies becomes increasingly important. Life PRIMES was able to share the experience on the growth path of resilience within the communities actively involved in the project. A special networking opportunity with delegates from other international institutions was the participation in a role play (Game Scenario) on planning choices and disaster management planning. The simulation was aimed at recognizing the uncertain aspects due to climate change and the need to be prepared to manage even unexpected events.

*Astrid Franceschetti, Agency for Territorial Security and Civil Protection of Emilia-Romagna*

# “After Life Plan”

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The PRIMES project ends on December 31, 2018, but the results obtained and the good practices built in these three years will be enhanced in the following years thanks to an "After Life" action plan that all the Partners and the administrations of the pilot areas will underwrite.

This initiative, as well as being included in the project document, reflects the provisions of the Flood Risk Management Plans, in compliance with Directive 2007/60 / EC, in particular in the context of measures relating to the improvement of the warning systems and the modalities information to the population, to the promotion of the "culture of risk" that allows the full involvement of local authorities and supports the training of citizens on the issues of prevention of weather-hydrogeological-hydraulic risk and the management of emergencies and verification / adaptation of civil protection plans at various levels.

There will be a program to maintain and update the web platform with the aim of making the PRIMES tool-kit available to communities and the CAAP always available to be compiled.

A particular commitment will be dedicated to supporting the local administrations of the pilot areas to complete the process of integrating the CAAP into the Municipal Civil Protection Planning and disseminating the "best practices" that emerged from their compilation.

Another important objective of the continuation plan is the dissemination of good practices outside the context of PRIMES to reach other municipalities exposed to flood risk in the three partner regions and capture the attention of national institutions, thanks also to the collaboration with other Civil Protection structures, to ensure that the experiences and tools developed through Life PRIMES, as well as the results obtained, can be replicated in other parts of Italy.

Last but not least, there will be networking actions with institutional and research communities working in the field of climate change and monitoring the implementation status of adaptation actions in the civil protection plans of the pilot municipalities.

A further effort will therefore be required to "mo-

netize" in concrete the great teamwork carried out with local administrations, civil protection, citizens, schools, volunteers, experts and the scientific community to increase the resilience of the communities facing to natural disasters.

*Valeria Pancioli, Agency for Territorial Security and Civil Protection of Emilia-Romagna*